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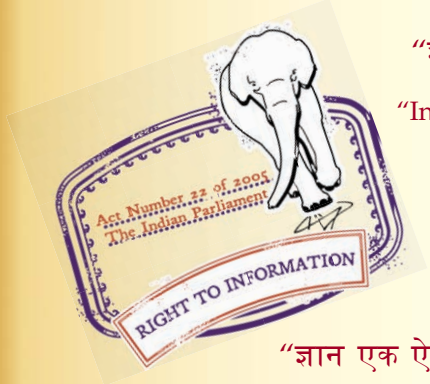

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IS : 11992 - 1986
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Indian Standard

SPECIFICATION FOR CORRECTION FLUID FOR CONCEALING TYPED ERRORS

UDC 686·868·8 : 681·62·06

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 5

August 1987

Indian Standard

SPECIFICATION FOR CORRECTION FLUID FOR CONCEALING TYPED ERRORS

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(*Continued on page* 17)

Indian Standard

SPECIFICATION FOR CORRECTION FLUID FOR CONCEALING TYPED ERRORS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 15 October 1986, after the draft finalized by the Inks and Allied Products Sectional Committee had been approved by the Chemical Division Council.

0.2 Correction fluid, for concealing typed errors is used primarily for correcting and concealing typographical errors, in original drawings, in copy preparations, for offset and other photographic reproductions. A solvent for thinning correction fluid, whenever necessary, is also included. It can also be used by engineers, architects and draftsmen.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final values, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for correction fluid for concealing typed errors.

2. TYPE

2.1 The correction fluid shall be of two types, namely:

Type 1 — solvent based, and
Type 2 — water based.

3. REQUIREMENTS

3.1 Material — The correction fluid shall consist of titanium dioxide pigment (*see* IS : 411-1981† and IS : 9788-1981‡) a suitable vehicle (binder) and a thinner.

*Rules for rounding off numerical values (*revised*).
†Specification for titanium dioxide, anatase, for paints (*second revision*).
‡Specification for titanium dioxide, rutile for paints.

3.2 Condition — The correction fluid as received shall be ready for use and shall be homogeneous or readily redispersible to homogeneous state when shaken by hand.

3.3 The material shall conform to the requirements prescribed in Table 1.

TABLE 1 REQUIREMENTS OF CORRECTION FLUID FOR CONCEALING TYPED ERRORS

Sl No.	Characteristic	Requirement				Method of Test (Ref to Appendix)
		Type 1		Type 2		
		Min	*Max*	*Min*	*Max*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Pigment content, percent by mass	30	60	40	60	A
ii)	Drying time (air drying), in seconds*	—	30	—	40	B
iii)	Viscosity, seconds	15	60	15	75	C
iv)	Fineness of grind	5	—	5	—	D
v)	Non-volatile or film-forming content of vehicle, percent by mass	5	20	5	20	E

*On specified paper preconditioned for 24 hours at a temperature of 27 ± 1°C and relative humidity 65 ± 2 percent. The applied coating shall have a dry film thickness as to hide the typed error.

3.4 Flash Point (for Type 1 only) — The flash point shall be not less than 10°C when tested by the method prescribed in IS : 1448 [P : 20]-1982*.

3.5 Odour — The material shall not have any irritating or offensive odour while drawing from container or after application.

3.6 The material shall be capable of being redispersed when shaken by hand to a smooth, free-flowing and homogeneous state if there is any indication of settling in freshly received container.

3.7 The material shall be free from curdling, caking, livering, lumps and skins.

3.8 Brushing Properties and Appearance of Dry Film (Coating) — The correction fluid shall be of a good brushing consistency in the packed

*Methods of test for petroleum and its products [P : 20] Determination of flash point by Abel's apparatus (*first revision*).

condition. When tested as specified in Appendix B, the fluid shall dry to a smooth uniform film free from streaking, blushing, peeling, blistering or any other defect which affects the appearance or the satisfactory performance of the product.

3.9 Flexibility — When tested as described in Appendix F, the film (coating) of the correction fluid shall not crack, flake or show any blemishes.

3.10 Performance — The correction fluid shall form an opaque adherent coated surface suitable for reworking when tested as specified in Appendix B. When applied over original copy, it shall not run or disturb the surrounding letters. It shall not cause the paper to wrinkle in adjacent areas. No bleeding or raising of the ink shall appear after application of the correction fluid.

3.11 Thinner — The thinner, if supplied for thinning, Type 1 material shall be compatible with the correction fluid.

3.12 Storage Stability (Filled Container) — After storage for one year, the correction fluid shall show no skimming, livering, crudling, caking and hard settling, and shall readily remix.

4. PACKING AND MARKING

4.1 Packing — Correction fluid and thinner, if supplied, shall be suitably packed in containers as agreed to between the purchaser and the supplier.

4.1.1 *Container Size* — The container sizes shall be 10 ml, 15 ml or 20 ml for either fluid or thinner. These shall be made available individually or suitably packed together.

4.2 Marking — The container shall be marked clearly with the following information:

a) Name and type of the material;

b) Volume in ml;

c) Month and year of packing;

d) Manufacturer's name and his recognized trade-mark, if any; and

e) Batch number in code or otherwise to enable the batch number to be traced from records.

4.2.1 *Direction* — Instructions for use of correction fluid and thinner, wherever supplied, shall be furnished with each container. Instructions, so furnished, may be in a sheet form or appear on label of individual container. Instructions shall be complete, comprehensive and legibly printed.

4.2.2 *Caution* — A note of caution shall be printed on labels as follows for Type 1.

Highly inflammable and volatile.

4.2.3 The containers may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5. SAMPLING

5.1 The method of drawing representative samples of the materials from a lot, number of tests to be performed and the method of finding out the criteria for conformity of the material to the requirements of this standard shall be as prescribed in Appendix G.

APPENDIX A

[*Table* 1, *Sl No.* (i)]

DETERMINATION OF PIGMENT CONTENT

A-0. PRINCIPLE

A-0.1 The pigment content is determined by treating the material with acetone and then separating it in a centrifuge and drying.

A-1. PROCEDURE

A-1.1 Weigh accurately 15 to 20 g of the well-mixed material into a weighed centrifuge tube. Add 20 to 30 ml of acetone (*see* IS : 170-1986* and mix thoroughly using glass rod.

After mixing, rinse the glass rod thoroughly with acetone in the centrifuge tube. Fill the tube and place it in the container of the centrifuge, counterbalance the container of the opposite arm and whirl at a minimum speed of 3 000 rev/min, until maximum separation is effected. Decant the liquid and repeat the process twice or more if required. Place the tube containing the pigment on the top of the air-oven for half an hour for the solvents to escape and then inside an oven maintained at 100 ± 2°C and weigh after drying to constant mass.

*Specification for acetone (*third revision*).

APPENDIX B

[*Table* 1, *Sl No.*(ii) and *Clauses* 3.8 *and* 3.10]

TEST FOR DRYING TIME BRUSHING PROPERTIES AND APPEARANCE OF DRY FILM AND PERFORMANCE

B-1. COPY PREPARATION

B-1.1 Typed copy shall be made of bond paper, white (*see* IS : 1848-1981*) to conduct the tests specified herein. The copy shall be made on a typewriter with freshly cleaned pica type and the impressions shall be clear and distinct without any cut-out of the letters or characters. A fabric type writer ribbon (*see* IS : 4174-1977†) shall be used to conduct the test and then the tests shall be repeated under the same specified conditions using silk typewriter ribbon (*see* IS : 9056-1979‡).

B-2. PROCEDURE

B-2.1 Insert paper in typewriter approximately 12 cm in length and type capitals B's, T's and K's. Push carriage, bearing the ribbon with it back to starting point, shift the paper a single spaced line, and again type the same letters from the same distance. Prepare a third line as specified. Following the above, shift papers as required, single spacing, and type two additional lines of lower case letters and characters such as comma, Figures 6 and 8, and other characters. With the paper still in the typewriter, roll copy in a manner that corrections can be made on the second and fourth lines as hereinafter described, with the copy in the machine and resting on a flat surface. Shake a previously unopened sample container of correction fluid, take out cap and brush, remove any excess fluid from the brush by squeezing and storking on the inside of the container top; paint or coat of correction fluid to hide the original/copy and still provide a suitable surface for retyping and reproduction, over the third character on the second line of copy prepared as described above. Repeat in the same manner over the sixth, seventh, eighth and ninth capital letters of the same line, and then over the last eight letters of the line. Repeat all the foregoing procedures on the fourth line. Care shall be taken to apply the fluid to only the areas specified to be coated without disturbing adjacent letters or characters of prepared copy. Allow up to 30 seconds for Type 1 and 40 seconds for Type 2 correction fluid to dry and then retype over the printed areas under conditions as specified above using different capital letters on the second line and different lower case letters and other characters on the fourth line.

*Specification for writing and printing papers (*second revision*).

†Specification for typewriter ribbons, cotton (*first revision*).

‡Specification for typewriter ribbons, silk.

During the above procedures and after removal of preferred copy from the typewriter, examine for conformance with the requirements of drying of time and **3.8** and **3.10**.

APPENDIX C

[*Table* 1, *Sl No.* (iii)]

DETERMINATION OF VISCOSITY

C-0. PRINCIPLE

C-0.1 Insert a clean metal rod or palette knife into the original container and examine the nature of the settling. The material shall not cake hard inside the container and shall be in such a condition that stirring easily produces a smooth uniform material suitable for application.

C-1. APPARATUS

C-1.1 Flow Cup — The cup* described in this standard gives only an approximate measure of consistency as distinct from a measure of viscosity, the cup flow timings being influenced by the amount of mechanical disturbance of the sample before and during the test, and is not accurate for very viscous material.

C-1.1.1 *Form and Dimensions* — The flow cup shall be essentially of the form and dimensions shown in Fig. 1.

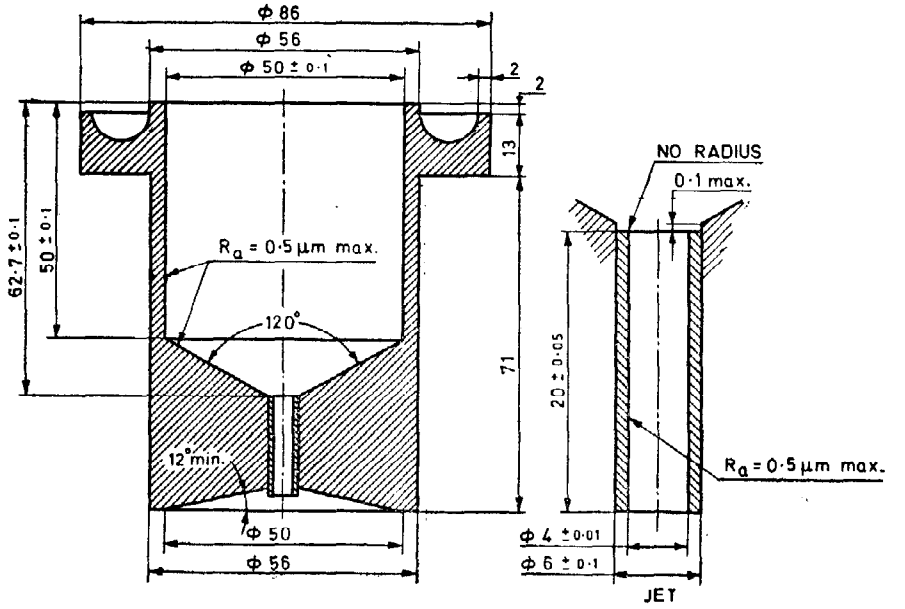
C-1.1.2 *Material of Construction* — A cup made of any non-ferrous material is suitable. This may be plated. The finish shall be smooth.

C-1.1.3 The jet may be either bored directly or constructed separately from stainless steel and force fitted. Care is essential in order to avoid damage to the lower apex of the cup. A protective skirt which does not interfere with the flow may be provided.

C-1.1.4 The following apparatus shall be used in carrying out a test:

a) A thermometer accurate to within 0·5 °C;
b) A stop-watch or stop-clock;
c) A suitable stand, provided with levelling screws;
d) A spirit level; and
e) A straight-edged scraper for the top of the cup.

*Generally known as Ford Cup Viscometer No. 4.



All dimensions in millimetres.

FIG. 1 FLOW CUP

C-2. Procedure — Place the flow cup on the stand in a place free from draughts, preferably with the air temperature within the range 30 ± 5°C. Level by the use of a spirit level placed on the rim.

C-2.1 Strain the sample into a clean container and adjust the temperature to meet the requirements specified in **C-2.3.** This and the following operations shall be carried out with minimum delay to avoid loss of solvent.

C-2.2 With the orifice closed by the finger, fill the cup with the bubble-free sample until it just begins to overflow into the gallery, pouring slowly to minimize the formation of air bubbles. If bubbles are present, allow them to rise and then remove them from the surface.

C-2.3 Check that the temperature of the material in the cup is within 0·5°C of the test temperature. The cup may be at a temperature different

from that of the sample and it is recommended that a minute or so be allowed to elapse before checking the temperature.

C-2.4 Place the scraper on the rim of the cup and draw it firmly across until the excess of the sample has flowed into the galley. Place the receiver under the cup. Remove the finger and simultaneously start the stop-watch. Watch the stream of liquid flowing from the orifice. At the first evidence of a break of the stream into droplets, stop the stop watch. The time taken is recorded in seconds as time of flow in flow cup.

APPENDIX D

[*Table* 1, *Sl No.* (iv)]

DETERMINATION OF FINENESS OF GRIND

D-0. PRINCIPLE

D-0.1 This test is intended to measure the degree of dispersion (commonly referred to as finenes of grind) of pigment in vehicle system, such as in ready mixed paints. It is to be used as a rapid test for routine testing. In the test, the product is spread in a calibrated tapered groove. At some point in this groove particles or agglomerates, or both, will become visible. A direct reading from the calibrated scale is then made at the point where visible particles appear.

D-1. APPARATUS

a) *Gauge* — A hardened steel block approximately 180 mm in length, 63·5 mm in width and 12·5 mm in thickness. The top surface of the block shall be ground smooth, and flat, and shall contain a groove 133·4 mm in length and 12·5 mm in width, centred in the top of the block. The groove shall be tapered uniformly in depth lengthwise from 0·102 mm at one end to zero depth at the other, calibrated with a scale number in accordance with its depth as given in Table 2.

NOTE — The apparatus may also be of a double channel type for comparing another sample.

b) *Scraper* — A double-wedged steel blade 87·5 mm long, 37·5 mm wide and 6·8 mm thick. The two edges along the length shall be rounded to a radius of approximately 0·25 mm.

TABLE 2 RELATIONSHIP BETWEEN DEPTH OF TAPERED GROOVE AND SCALE FOR FINENESS OF GRIND

(*Clause* D-1)

DISTANCE FROM ZERO END, mm	DEPTH microns	HEGMAN SCALE
133	102	Well for sample
127	102	0
111	89	1
95	76	2
79	64	3
63	51	4
48	38	5
32	25	6
16	13	7
0	0	8

D-2. PROCEDURE

This consists of the following steps:

a) Place the gauge on a flat, non-slippery surface and wipe it clean immediately before the test.

b) Place the material to be tested in the deep end of the groove so that it overflows the groove slightly. Care must be taken to see that the sample is free of air bubbles.

c) Using both hands, hold the blade perpendicular to the block surface and at right angles to the length of the groove draw, the material down the length of the groove with a uniform, deliberate motion. Use sufficient pressure to clean the level face of the gauge.

d) Immediately read the fineness as follows:

1) View the gauge from the side so that the line of vision is at right angles to the longer dimension of the groove.

2) Hold the gauge in light that will make the pattern readily visible.

3) For actual reading, make the angle between the face of the gauge and the line of vision not more than 30° nor less than 20°.

4) Interpret the pattern and designate dispersion in millimetres or scale number, ignoring the few isolated and irregularly spaced particles towards the deep end of the groove.

Using a fresh sample of the material each time, obtain three readings in like manner. The first draw-down and reading is preliminary in order to establish proper conditions

and to locate the fineness pattern. With this known, the second and third readings can be made with a minimum time lapse between completion of draw-down and actual reading. No reading shall be considered for reporting fineness when time lapse exceeds 10 seconds.

NOTE — In the case of oil-pastes, a little medium shall be used for bringing the material to ready mixed consistency.

D-3. PRECISION

Reading shall be reproducible within 0·13 mm.

D-4. CARE OF GAUGE

a) The gauge shall be immediately cleaned after each reading. Use a solvent and a soft cloth. Keep the gauge covered at all times when not in use. Gauges that lie idle for extended periods of time shall be protected from rust.

b) Do not allow any hard materials to come in contact with the gauge surface or scraper in any manner that might result in scarring or nicking. Tapping or scratching with other metallic surfaces shall be avoided.

c) The scraper edge may be rendered unsatisfactory for use by wear of the contact edge or by warpage.

NOTE — Wear or warpage of the scraper may be noted by facing the edge of the scraper down on the smooth level face of the gauge and then inspecting the contact edge by means of a strong light, placed behind the gauge. Rocking the scraper forward or backward will reveal poor contact due to wear or warpage. If any face shows that the scraper has been damaged, it shall not be used.

APPENDIX E

[*Table* 1, *Sl No.* (v)]

DETERMINATION OF NON-VOLATILE OR FILM-FORMING CONTENT OF VEHICLE

E-0. PRINCIPLE

E-0.1 The vehicle is extracted with benzyl alcohol and extract dried in vacuum chamber.

E-1. APPARATUS

E-1.1 Beaker — 100 ml capacity, of glass (*see* IS : 2619-1971*).

*Specification for glass beakers (*first revision*).

E-1.2 Water-Bath

E-1.3 Vacuum Chamber — suitable one.

E-2. REAGENT

E-2.1 Benzyl Alcohol — *See* IS : 3924-1980*.

E-3. PROCEDURE

E-3.1 Weigh accurately 5 g of the material in a beaker. Add 25 ml of benzyl alcohol. Warm over a water-bath for 20 minutes. Filter the warm solution through Whatman No. 1 filter paper and wash the residue with warm benzyl alcohol three to four times. Collect the filtrate and washings in a previously weighed beaker and dry the filtrate in a vacuum chamber. Continue drying and weighing until constant mass is obtained.

E-4. CALCULATION

E-4.1 Non-volatile matter, percent by mass $= \frac{W_1 \times 100}{W_2}$

where

W_1 = mass in g of dried material, and

W_2 = mass in g of material taken for test.

APPENDIX F

(*Clause* 3.9)

TEST FOR FLEXIBILITY OF THE FILM

F-1. PROCEDURE

F-1.1 After the completion of test and examination as specified in Appendix B, fold the entire sheet lengthwise so that the fold passes through a corrected portion of more than one letter or character of copy, pressing sufficiently to cause a slight but perceptible crease or bend through the copy; repeat, folding the paper crosswise. Examine copy where folds or creases meet to determine compliance with the requirements prescribed in 3.9.

*Specification for benzyl alcohol (*first revision*).

APPENDIX G

(*Clause* 5.1)

SAMPLING OF CORRECTION FLUID

G-1. GENERAL REQUIREMENTS OF SAMPLING

G-1.0 In drawing, preparing, storing and handling test samples the following precautions and directions shall be observed.

G-1.1 Samples shall be taken in covered area.

G-1.2 The sampling instrument shall be clean and dry, when used.

G-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

G-1.4 To draw a representative sample, the contents of each container selected for sampling shall be thoroughly mixed.

G-1.5 The samples shall be filled in clean, dry, air-tight glass containers on which the material has no action.

G-1.6 The sample containers shall be of such size that they are almost completely filled by the sample.

G-1.7 Each sample container shall be sealed air-tight with a stopper after filling and marked with full particulars of the material as given in **4.2** and the date of sampling.

G-1.8 The sample shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

G-2. SCALE OF SAMPLING

G-2.1 Lot — All the containers from the same batch of manufacture shall be grouped together to constitute a lot.

G-2.2 The samples shall be tested from each lot separately for ascertaining the conformity of the material to the requirements of this specification.

G-2.3 The number of containers to be selected for sampling (n) shall depend upon the number of containers in the lot (N) and shall be in accordance with col 1 and 2 of Table 3.

G-2.4 The containers shall be selected at random from the lot. To ensure the randomness of selection, random number table shall be used.

TABLE 3 NUMBER OF CONTAINERS TO BE SELECTED FOR SAMPLING
(*Clause* G-2.3)

No. of Containers in the Lot *N*	No. of Containers to be Selected *n*
(1)	(2)
Up to 15	2
16 to 50	3
51 to 150	5
151 and above	8

For guidance in random selection procedures, IS : 4905-1968* may be used. In case such a table is not available, the following procedure shall be employed:

Starting from any container, count them as 1, 2, 3,....., up to r and so on in one order, where r is equal to the integral part of N/n, N being the number of containers in the lot and n the number of containers to be selected (*see* Table 3). Every rth container thus counted shall be withdrawn to give the requisite number of containers for the sample.

G-3. TEST FOR SAMPLES AND REFEREE SAMPLES

G-3.1 Before drawing the samples, the material in the container chosen (*see* **G-2.3**) shall be thoroughly mixed by shaking, stirring or rolling. The samples shall then be drawn with the help of a suitable sampling instrument.

G-3.2 From each of the containers three test samples shall be drawn, the volume of each being sufficient for conducting all the tests specified in **3.** All the test samples thus obtained shall be transferred to sample containers (*see* **G-1.5**) and marked with all the details of sampling (*see* **G-1.7**). These samples shall then be separated into three identical sets of test samples in such a way that each set has a test sample representing each container selected (*see* **G-2.3**). One of these three sets shall be for the purchaser, another for the supplier and the third for the referee.

G-3.3 Referee Sample — The referee sample shall consist of the set of test samples (*see* **G-3.2**) marked for this purpose and shall bear the seals of both the purchaser and the supplier and shall be kept at a place agreed to between the two.

*Methods for random sampling.

G-4. NUMBER OF TESTS

G-4.1 Tests for all the requirements of the specification given in 3 shall be conducted on each of the samples in a set.

G-5. CRITERIA FOR CONFORMITY

G-5.1 A lot shall be declared as conforming to the requirements of this specification if each of the test results satisfies the relevant requirements of the specification individually.

(*Continued from page* 2)

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SHRI S. VENKATARAMAN	Indian Duplicator Co Pvt Ltd, Calcutta
SHRI A. K. SEN GUPTA (*Alternate*)	

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg,m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s(s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2